

## CLAIMS

It is claimed:

1. A system comprising:
  - a first computing device having a network device included therein, the first computing device coupled to a first network and the network device coupled to a second network
  - a second computing device coupled to the first network, the second computing device including software which when executed causes the second computing device to perform operations comprising
    - establishing a communication channel with the first computing device over the first network
    - creating a virtual interface to mirror the network device included in the first computing device, the virtual interface
    - receiving via the communication channel incoming data units directed to the network device,
    - forwarding outgoing data units to the network device via the communication channel.
2. The system of claim 1 wherein the communication channel is a tunnel.
3. The system of claim 2 wherein the first computing device includes a first tunnel device and the second computing device includes a second tunnel device, the tunnel established between the first tunnel device and the second tunnel device.

4. The system of claim 3 wherein the first tunnel device and the second tunnel device are each network interface devices.

5. The system of claim 1 wherein the incoming data units originate on the second network.

6. The system of claim 1 wherein the outgoing data units are directed to a device under test coupled to the second network.

7. The system of claim 1 wherein the first computing device is a network testing system and the second computing device is a computer workstation.

8. The system of claim 1 wherein the first computing device is a first computer workstation and the second computing device is a second computer workstation.

9. The system of claim 1 wherein the first network and the second network are the same network.

10. A system comprising:  
a first computing device having at least one network device included therein, the first computing device coupled to a first network, and each network device coupled to a second network, each network device having at least one network interface associated therewith  
a second computing device coupled to the first network, the second computing device including software which when executed causes the second computing device to perform operations comprising

establishing a communication channel with the first computing device over the first network  
creating at least one virtual interface to mirror one of the network interfaces to one of the network devices included in the first computing device, the virtual interface receiving via the communication channel incoming data units directed to the network interface  
forwarding via the communication channel outgoing data units to the network interface.

11. The system of claim 10 wherein the communication channel is a tunnel.
12. The system of claim 11 wherein the first computing device includes a first tunnel device and the second computing device includes a second tunnel device, the tunnel established between the first tunnel device and the second tunnel device.
13. The system of claim 11 wherein the first tunnel device and the second tunnel device are each network interface devices.
14. The system of claim 10 wherein the incoming data units originate on the second network..
15. The system of claim 10 wherein the outgoing data units are directed to a device under test coupled to the second network.

16. The system of claim 10 wherein the first computing device is a network testing system and the second computing device is a computer workstation.

17. The system of claim 10 wherein the first computing device is a first computer workstation and the second computing device is a second computer workstation.

18. A method for accessing the capabilities of a network device via a virtual interface comprising

establishing over a network a communication channel with a computing device  
creating at least one virtual interface to mirror a network interface to the network  
device included in the computing device  
receiving from the computing device via the communication channel incoming data  
units directed to the network interface  
making the incoming data units available to upper layer software via the virtual  
interface.

19. The method of claim 18 further comprising:

receiving outgoing data unit requests from the upper layer software via the virtual  
interface  
transmitting the outgoing data unit requests to the network interface over the  
communication channel, the outgoing data unit requests instructing the network interface to  
send data units onto a second network.

20. The method of claim 18 wherein the establishing the communication channel includes using a transmission control protocol (TCP) socket to create a tunnel.

21. A computer workstation comprising a processor, a memory, a network interface card, and an operating system, the processor to execute instructions causing the workstation to perform operations comprising:

establishing a communication channel over a network with a computing device

creating at least one virtual interface to mirror a network interface to the network

device included in the computing device

receiving from the computing device via the tunnel incoming data units directed to the network interface

making the incoming data units available to upper layer software via the virtual interface.

22. The computer workstation of claim 21 having further instructions which when executed cause the workstation to perform further operations comprising:

receiving outgoing data unit requests from the upper layer software via the virtual interface

transmitting the outgoing data unit requests to the network interface over the communication channel, the outgoing data unit requests instructing the network interface to send data units onto a second network.

23. The computer workstation of claim 21 wherein the establishing the communication channel includes using a transmission control protocol (TCP) socket to create a tunnel.

24. A machine readable medium having instructions stored thereon which when executed by a processor cause a computer workstation to perform operations comprising:  
establishing a communication channel with a computing device  
creating at least one virtual interface to mirror a network interface to the network device included in the computing device  
receiving from the computing device via the communication channel incoming data units directed to the network interface  
making the incoming data units available to upper layer software via the virtual interface.

25. The machine readable medium of claim 24 having further instructions which when executed cause the computer workstation to perform further operations comprising:  
receiving outgoing data unit requests from the upper layer software via the virtual interface  
transmitting the outgoing data unit requests to the network interface over the communication channel, the outgoing data unit requests instructing the network interface to send data units onto a network.

26. The machine readable medium of claim 24 wherein the establishing the communication channel includes using a transmission control protocol (TCP) socket to create a tunnel over a connection with the computing device.
27. machine readable medium of claim 24 wherein the connection with the computing device is one of a direct connection and a network connection.
28. A system comprising:
  - a first computing device coupled to a first network
  - a second computing device having a network device included therein, the network device coupled to a second network, the second computing device coupled to the first network, the second computing device including software which when executed causes the second computing device to perform operations comprising
    - accepting a connection request from the first computing device over a communication channel
    - forwarding to the first computing device via the communication channel incoming data units received by the network device,
    - receiving from the first computing device via the communication channel outgoing data unit requests to send outgoing data units onto the second network via the network device.
29. The system of claim 28 wherein the communication channel is a tunnel.

30. The system of claim 29 wherein the first computing device includes a first tunnel device and the second computing device includes a second tunnel device, the tunnel established between the first tunnel device and the second tunnel device.

31. The system of claim 30 wherein the first tunnel device and the second tunnel device are each network interface devices.

32. A system comprising:

a first computing device coupled to a first network,

a second computing device having at least one network device included therein, the second computing device coupled to the first network, each network device coupled to a second network, each network device having at least one network interface associated therewith, the second computing device including software which when executed causes the second computing device to perform operations comprising

accepting a network interface connection request from the first computing device over a communication channel on the first network, the network interface connection request including a specified network interface of the network device

forwarding to the first computing device via the communication channel incoming data units received by the specified network interface,

receiving from the first computing device via the communication channel outgoing data unit requests to send outgoing data units onto the second network via the specified network interface.

33. The system of claim 32 wherein the first computing device includes a first communication device and the second computing device includes a second communication device, the communication channel established between the first communication device and the second communication device.

34. The system of claim 33 wherein the first communication device and the second communication device are each network interface devices.

35. The system of claim 32 wherein the first network is an Ethernet network.

36. A method for allowing a computing device to access the capabilities of a network device via a virtual interface comprising

establishing over a first network a communication channel with the computing device

associating a network interface of the network device with the communication

channel

receiving over a second network incoming data units directed to the network interface of the network device

forwarding the incoming data units to the computing device via the communication channel.

37. The method of claim 36 further comprising:

receiving via the communication channel outgoing data unit requests from the computing device, the outgoing data unit requests including an identifier of a specified network interface

transmitting outgoing data units pursuant to the outgoing data unit requests onto the second network via the specified network interface.

38. The method of claim 36 wherein the establishing the communication channel includes using a transmission control protocol (TCP) socket to create a tunnel.

39. A network testing system having a processor, a memory, an operating system, and at least one network card, the processor to execute instructions stored in the memory to perform operations comprising

opening over a first network a communication channel with a computing device  
style="padding-left: 40px;"/>associating a network interface of a network device included in one of the network cards with the communication channel  
style="padding-left: 40px;"/>receiving over a second network incoming data units directed to the network interface of the network device  
style="padding-left: 40px;"/>forwarding the incoming data units to the computing device via the communication channel.

40. The network testing system of claim 39 wherein the processor executes further instructions to perform further operations comprising:

receiving via the communication channel outgoing data unit requests from the computing device, the outgoing data unit requests including an identifier of a specified network interface of one of the network interfaces

transmitting outgoing data units pursuant to the outgoing data unit requests onto the second network via the specified network interface.

41. The network testing system of claim 39 wherein the opening the communication channel includes using a transmission control protocol (TCP) socket to create a tunnel.

42. A machine readable medium having instructions stored thereon which when executed by a processor cause a network card to perform operations comprising

establishing a communication channel over a first network with a computing device

associating a network interface of a network device included in the network card with the communication channel

receiving over a second network incoming data units directed to the network interface of the network device

forwarding the incoming data units to the computing device via the communication channel.

43. The machine readable medium of claim 42 having further instructions stored thereon which when executed by the processor cause the network card to perform further operations comprising:

receiving via the communication channel outgoing data unit requests from the computing device, the outgoing data unit requests including an identifier of a specified network interface of one of the network interfaces

transmitting outgoing data units pursuant to the outgoing data unit requests onto the second network via the specified network interface.

44. The machine readable medium of claim 42 wherein the establishing the communication channel includes using a transmission control protocol (TCP) socket to create a tunnel.